

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (currently amended) An isolated MUC1-specific binding member comprising a light chain variable domain, or portion thereof, and a heavy chain variable domain, or portion thereof, and comprising an amino acid sequence of the formula:

X<sub>1</sub> X<sub>2</sub> His Thr Gly X<sub>3</sub> Gly Val Trp X<sub>4</sub> Pro X<sub>5</sub> X<sub>6</sub> X<sub>7</sub> (SEQ ID NO: 28),

wherein X<sub>1</sub> is Ala, Ser, Thr, or Val;

X<sub>2</sub> is Lys, Ile Arg, or Gln;

X<sub>3</sub> is Gly, Arg, Val, Glu, Ser, or Ala;

X<sub>4</sub> is Asp or Asn;

X<sub>5</sub> is Ile, Leu, Met, Phe, or Val;

X<sub>6</sub> is Asp, Gly, Lys, Asn, Ala, His, Arg, Ser, Val, or Tyr; and

X<sub>7</sub> is Tyr, His, Lys, Asn, Asp, Ser, Pro,

wherein the amino acid sequences is in [[its]] a DP47 germline framework, a PH1 framework, or is in a framework from a different polypeptide and wherein the isolated MUC1-specific binding member binds MUC1.

2. (currently amended) The MUC1-specific binding member according to Claim 1, wherein the ~~MUC1-specific binding member~~ heavy chain variable domain or portion thereof comprises an amino acid sequence selected from the group consisting of:

Ala Lys His Thr Gly Gly Gly Val Trp Asp Pro Ile Asp Tyr (amino acids 97-110 of SEQ ID NO:3);

Ala Lys His Thr Gly Arg Gly Val Trp Asp Pro Ile Gly Tyr (SEQ ID NO:29);

Ala Lys His Thr Gly Gly Gly Val Trp Asp Pro Ile Lys His (SEQ ID NO:30);

Ala Lys His Thr Gly Gly Gly Val Trp Asp Pro Ile Gly Tyr (SEQ ID NO:31); and  
Ala Ile His Thr Gly Gly Gly Val Trp Asp Pro Ile Lys Tyr (SEQ ID NO:32).

3. (previously presented) An isolated MUC1-specific binding member comprising an antigen binding domain of SEQ ID NO:1 and an antigen binding domain of SEQ ID NO:3, wherein the isolated MUC1-specific binding member binds MUC1.

4. (currently amended) [[A]] An isolated MUC1-specific binding member comprising:  
a heavy chain variable region, or portion thereof;  
a light chain variable region, or portion thereof; and

a CDR having an amino acid sequence selected from the group consisting of amino acids 24 to 39 of SEQ ID NO:1, amino acids 55 to 61 of SEQ ID NO:1, amino acids 94 to 102 of SEQ ID NO:1, amino acids 31 to 35 of SEQ ID NO:3, amino acids 50 to 66 of SEQ ID NO:3, amino acids 99 to 110 of SEQ ID NO:3, and conservatively substituted sequences of amino acids 99 to 110 of SEQ ID NO:3, wherein the amino acid sequence is in [[its]] a DP47 or DPK15 germline framework, a PH1 framework, or is in a framework from a different polypeptide and wherein the isolated MUC1-specific binding member binds MUC1.

5. (original) The MUC1-specific binding member according to any of Claims 1, 2, 3, or 4, wherein said MUC1-specific binding member is a fusion protein.

6. (original) The MUC1-specific binding member according to any one of Claims 1, 2, 3, or 4, further comprising a detectable label or tag.

7. (original) The MUC1-specific binding member according to Claim 6, wherein the detectable label or tag is selected from the group consisting of epitope tags, fluorescent labels, radioactive labels, heavy metals, anti-cancer drugs, toxins, and magnetic resonance imaging labels.

8. (original) The MUC1-specific binding member according to any one of Claims 1, 2, 3, or 4, wherein the MUC1-specific binding member is an antibody molecule selected from the group consisting of immunoglobulins, Fab antibodies, F(ab')<sub>2</sub> antibodies, diabodies, scFv antibodies, double scFv, Fv molecules, dAb, immunocytokine molecules, and immunotoxin molecules.

9. (previously presented) The MUC1-specific binding member according to Claim 8, wherein the MUC1-specific binding member is an immunocytokine molecule and the immunocytokine molecule comprises an amino acid sequence of SEQ ID NO:5.

10. (previously presented) The MUC1-specific binding member according to Claim 9, further comprising a detectable label or tag.

11. (original) The MUC1-specific binding member according to Claim 10, wherein the detectable label or tag is selected from the group consisting of, epitope tags, fluorescent labels, radioactive labels, and magnetic resonance imaging labels.

12. (previously presented) The MUC1-specific binding member according to Claim 8, wherein the MUC1-specific binding member is an immunoglobulin and the immunoglobulin comprises a light chain polypeptide comprising the amino acid sequence of SEQ ID NO:24 and a heavy chain polypeptide comprising the amino acid sequence of SEQ ID NO:26.

13. (previously presented) The MUC1-specific binding member according to Claim 12, further comprising a detectable label or tag.

14. (original) The MUC1-specific binding member according to Claim 13, wherein the detectable label or tag is selected from the group consisting of enzymes, epitope tags,

fluorescent labels, radioactive labels, heavy metals, anti-cancer drugs, toxins, and magnetic resonance imaging labels.

15. (currently amended) A MUC1-specific ~~binding member~~ antibody or antigen-binding fragment thereof, comprising a heavy chain variable region, or CDR thereof, from the DP47 germ line wherein the MUC1-specific binding member binds MUC1.

16. (currently amended) A MUC1-specific ~~binding member~~ antibody or antigen-binding fragment thereof, comprising a light chain variable region, or a CDR thereof, from the DPK15 germ line wherein the MUC1-specific binding member binds MUC1.

17. (currently amended) A MUC1-specific ~~binding member~~ antibody or antigen-binding fragment thereof, comprising a heavy chain variable region, or CDR thereof, from the DP47 germ line and a light chain variable region, or CDR thereof, from the DPK15 germ line wherein the MUC1-specific binding member binds MUC1.

18. (currently amended) A MUC1-specific ~~binding member~~ antibody or antigen-binding fragment thereof, comprising an amino acid sequence that is about 70% or more homologous to an amino acid sequence from the group consisting of:

Ala Lys His Thr Gly Gly Gly Val Trp Asp Pro Ile Asp Tyr (amino acids 97-110 of SEQ ID NO:3);

Ala Lys His Thr Gly Arg Gly Val Trp Asp Pro Ile Gly Tyr (SEQ ID NO:29);

Ala Lys His Thr Gly Gly Gly Val Trp Asp Pro Ile Lys His (SEQ ID NO:30);

Ala Lys His Thr Gly Gly Gly Val Trp Asp Pro Ile Gly Tyr (SEQ ID NO:31);

Ala Ile His Thr Gly Gly Gly Val Trp Asp Pro Ile Lys Tyr (SEQ ID NO:32); and  
amino acids 99 to 110 of SEQ ID NO:3

wherein the MUC1-specific binding member binds MUC1.

19. (currently amended) The MUC1-specific ~~binding member~~ antibody or antigen-binding fragment thereof of claim 18, wherein the amino acid sequence is about 80% or more homologous to any of the amino acid sequences.

20. (currently amended) The MUC1-specific ~~binding member~~ antibody or antigen-binding fragment thereof of claim 18, wherein the amino acid sequence is about 90% or more homologous to any of the amino acid sequences.

21. (currently amended) The MUC1-specific ~~binding member~~ antibody or antigen-binding fragment thereof of claim 18, wherein the amino acid sequence is about 95% or more homologous to any of the amino acid sequences.

22. (currently amended) The MUC1-specific ~~binding member~~ antibody or antigen-binding fragment thereof of claim 18, wherein the amino acid sequence is about 97% or more homologous to any of the amino acid sequences.

23. (currently amended) The MUC1-specific ~~binding member~~ antibody or antigen-binding fragment thereof of claim 18, wherein the amino acid sequence is about 99% or more homologous to any of the amino acid sequences.

24. (currently amended) [[A]] An isolated polypeptide molecule antibody or antigen-binding fragment thereof comprising an amino acid sequence that is about 70% or more homologous to amino acids 99 to 110 of SEQ ID NO:3, wherein the polypeptide molecule binds MUC1.

25. (currently amended) [[A]] The isolated polypeptide molecule antibody or antigen-binding fragment thereof of claim 24, wherein the ~~comprising an amino acid sequence that is~~

about 80% or more homologous to amino acids 99 to 110 of SEQ ID NO:3, ~~wherein the polypeptide molecule binds MUC1.~~

26. (currently amended) ~~[[A]] The isolated polypeptide molecule antibody or antigen-binding fragment thereof of claim 24, wherein the comprising an amino acid sequence that is about 90% or more homologous to amino acids 99 to 110 of SEQ ID NO: 3, wherein the polypeptide molecule binds MUC1.~~

27. (currently amended) ~~[[A]] The isolated polypeptide molecule antibody or antigen-binding fragment thereof of claim 24, wherein the comprising an amino acid sequence that is about 95% or more homologous to amino acids 99 to 110 of SEQ ID NO:3, wherein the polypeptide molecule binds MUC1.~~

28. (currently amended) The isolated polypeptide molecule according to any of claims 24, 25, 26 or 27, further comprising an amino acid sequence selected from the group consisting of SEQ ID NO:1, amino acids 24 to 39 of SEQ ID NO:1, amino acids 55 to 61 of SEQ ID NO:1, amino acids 94 to 102 of SEQ ID NO:1, SEQ ID NO:3, amino acids 31 to 35 of SEQ ID NO:3, and amino acids 50 to 66 of SEQ ID NO:3, wherein the polypeptide molecule binds MUC1.

29. (currently amended) The isolated polypeptide molecule according to claim 24, further comprising the following amino acid sequences amino acids 24 to 39 of SEQ ID NO:1, amino acids 55 to 61 of SEQ ID NO:1, amino acids 94 to 102 of SEQ ID NO:1, SEQ ID NO:3, amino acids 31 to 35 of SEQ ID NO:3, and amino acids 50 to 66 of SEQ ID NO:3, wherein the polypeptide molecule binds MUC1.

30. to 69. (canceled)

70. (previously presented) The MUC1-specific binding member of claim 4, comprising two or more CDRs of an antibody V<sub>L</sub>, or V<sub>H</sub> region, wherein the CDRs are selected from the group consisting of: amino acids 24 to 39 of SEQ ID NO:1 amino acids 55 to 61 of SEQ ID NO:1, amino acids 94 to 102 of SEQ ID NO:1, amino acids 31 to 35 of SEQ ID NO:3, amino acids 50 to 66 of SEQ ID NO:3, amino acids 99 to 110 of SEQ ID NO:3, and conservatively substituted sequences of amino acids 99 to 110 of SEQ ID NO:3.

71. (previously presented) The MUC1-specific binding member of claim 70, wherein the MUC1-specific binding member comprises at least two CDRs of the antibody V<sub>L</sub> region and at least two CDRs of the antibody V<sub>H</sub> region.

72. (previously presented) The MUC1-specific binding member of claim 70, wherein the MUC1-binding member comprises all three CDRs of the V<sub>L</sub> region.

73. (previously presented) The MUC-1-specific binding member of claim 70, wherein the MUC-1 binding member comprises all three CDRs of the V<sub>H</sub> region.

74. (previously presented) The MUC1-specific binding member of claim 1, wherein the germline framework is a DP47 framework, a DPK15 framework or both.

75. (previously presented) The isolated MUC1 specific binding member of claim 1, wherein the framework of the different polypeptide is a framework from a different germ line or a different antibody or fragments thereof.

76. (previously presented) The isolated MUC1-specific binding member of claim 75, wherein the framework of the different polypeptide is a human framework or fragment thereof.

77. (previously presented) The isolated MUC1-specific binding member of claim 75, wherein the framework is a framework other than a DP47 or DPK15 framework.

78. (previously presented) The isolated MUC1-specific binding member of any of claims 3 and 4, wherein the MUC1-specific binding member is a human MUC1-specific binding member.

79. (previously presented) The isolated MUC1-specific binding member of any of claims 1, 2, 3 and 4, wherein the MUC1-specific binding member has reduced HAMA response in humans as compared to a murine antibody.

80. (previously presented) The polypeptide molecule according to claim 29, wherein the polypeptide molecule comprises the amino acid sequence selected from the group consisting of SEQ ID NO:1 and SEQ ID NO:3.

81. (previously presented) The polypeptide molecule according to claim 80, wherein the polypeptide molecule comprises the amino acid sequence of SEQ ID NO:1 and SEQ ID NO:3.

82. (new) The MUC1-specific binding member of claim 4, wherein the MUC-1 specific binding member comprises two or more CDRs having an amino acid sequence selected from the group consisting of amino acids 24 to 39 of SEQ ID NO:1, amino acids 55 to 61 of SEQ ID NO:1, amino acids 94 to 102 of SEQ ID NO:1, amino acids 31 to 35 of SEQ ID NO:3, amino acids 50 to 66 of SEQ ID NO:3, amino acids 99 to 110 of SEQ ID NO:3, and conservatively substituted sequences of amino acids 99 to 110 of SEQ ID NO:3.

83. (new) The MUC1-specific binding member of claim 4, wherein the MUC-1 specific binding member comprises three or more CDRs having an amino acid sequence selected from the group consisting of amino acids 24 to 39 of SEQ ID NO:1, amino acids 55 to 61 of SEQ ID



NO:1, amino acids 94 to 102 of SEQ ID NO:1, amino acids 31 to 35 of SEQ ID NO:3, amino acids 50 to 66 of SEQ ID NO:3, amino acids 99 to 110 of SEQ ID NO:3, and conservatively substituted sequences of amino acids 99 to 110 of SEQ ID NO:3.

84. (new) The MUC1-specific binding member of claim 4, wherein the MUC-1 specific binding member comprises four or more CDRs having an amino acid sequence selected from the group consisting of amino acids 24 to 39 of SEQ ID NO:1, amino acids 55 to 61 of SEQ ID NO:1, amino acids 94 to 102 of SEQ ID NO:1, amino acids 31 to 35 of SEQ ID NO:3, amino acids 50 to 66 of SEQ ID NO:3, amino acids 99 to 110 of SEQ ID NO:3, and conservatively substituted sequences of amino acids 99 to 110 of SEQ ID NO:3.

85. (new) The MUC1-specific binding member of claim 4, wherein the MUC-1 specific binding member comprises five or more CDRs having an amino acid sequence selected from the group consisting of amino acids 24 to 39 of SEQ ID NO:1, amino acids 55 to 61 of SEQ ID NO:1, amino acids 94 to 102 of SEQ ID NO:1, amino acids 31 to 35 of SEQ ID NO:3, amino acids 50 to 66 of SEQ ID NO:3, amino acids 99 to 110 of SEQ ID NO:3, and conservatively substituted sequences of amino acids 99 to 110 of SEQ ID NO:3.

86. (new) The MUC1-specific binding member of Claim 1 or 2, wherein the MUC-1 specific binding member comprises four or more CDRs having an amino acid sequence selected from the group consisting of amino acids 24 to 39 of SEQ ID NO:1, amino acids 55 to 61 of SEQ ID NO:1, amino acids 94 to 102 of SEQ ID NO:1, amino acids 31 to 35 of SEQ ID NO:3, amino acids 50 to 66 of SEQ ID NO:3.